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EXAMINER

PHAN, TRONG Q

ART UNIT PAPER NUMBER

2827

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,893

Applicant(s)

HANNAH ET AL.

Examiner

TRONG PHAN

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The replacement sheets of drawings were received on 9/21/06. These drawings are acceptable for the purpose of examination.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: ***amplifier in Fig. 1; interlayer in Fig. 2***. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, ***the transparent layer as recited in claims 28 and 44*** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities:

Regarding Fig. 1 of the present invention, it is not clearly understood and how either one of the currents may be used to associate the state of the conductivity within the polymer 110 with the memory state of data stored in a bit when the polymer 110 is highly resistive, as described in paragraph [0016] because, as seen in Fig. 1 of the present invention, when the polymer 110 is highly conductive, the current 122 and the current 124 are both pouring down to the reference conductor 116; similarly, it is not

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clearly understood how once the current has been steered, according to the state of the polymer 110, many embodiments of the present invention may be used to read the current, as described in paragraph [0017] because, first of all, the specification does not clearly describe which of the current 122 or 124 has been steered according to the state of the polymer 110, secondly, Figs. 2-4 of the present invention do not show any embodiment associated with the reference conductor 116 as shown in Fig. 1 of the present invention, and, thirdly, as a result, it is not clearly understood what the reference conductor 116, as shown in Fig. 1 of the present invention, is really used for.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 18 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18, it is not clear how a first current is to be measured between the first conductive material and the reference conductor and, similarly, how a second current is to be measured between the second conductive material and the reference conductor since there is no recited circuit/element/means for providing the measuring operation.

Claim 22, it is not clear how a first current is to be measured between the first

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conductive material and the reference conductor and, similarly, how a second current is to be measured between the P-N junction and the reference conductor since there is no recited circuit/element/means for providing the measuring operation.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 18 is, insofar as understood, rejected under 35 U.S.C. 102(b) as being anticipated by Gudmundsen, 3,855,583.

Gudmundsen, 3,855,583, discloses in Figs. 2-3 a memory system comprising: CIJ memory 20, as shown in Fig. 2, insulation means 30 which is read on a volume of material; transparent conductor 28 which is read on a first conductive material; back conductor 46 which is read on a second conductive material; load resistor 52 which is read on a reference conductor; photon beam 78 which is read on an electron beam source.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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10. Claims 19-20 are, insofar as understood, rejected under 35 U.S.C. 103(a) as being unpatentable over Gudmundsen, 3,855,583, in view of Erikson, 3,519,820.

Gudmundsen, 3,855,583, discloses every feature except the amplifier to amplify the first and the second currents as recited in respective claims 19-20.

Erikson, 3,519,820, discloses in Fig. 1 the teaching of using an amplifier (not shown) to amplify the current passing through resistance means 10 (see lines 4-6, column 3).

It would have been obvious under 35 USC 103(a) to one of ordinary skill in the art at the time of the invention was made to utilize the amplifier of Erikson, 3,519,820, for amplifying the current passing from transparent conductor 28 through the load resistive conductor 52 and amplifying the current passing from the back conductor 46 through the load resistive conductor 52 in Figs. 2-3 of Gudmundsen, 3,855,583.

11. Claim 21 is, insofar as understood, rejected under 35 U.S.C. 103(a) as being unpatentable over Gudmundsen, 3,855,583, in view of Skelly, 3,573,753.

Gudmundsen, 3,855,583, discloses every feature except the feature of the volume of material being a polymer as recited in claim 21.

Skelly, 3,573,753, discloses in Fig. 1 the teaching of using nonbrittle, nonconductive polymer material for the dielectric layer 11 in the data storage information medium 10 (see lines 29-51, column 3).

It would have been obvious under 35 USC 103(a) to one of ordinary skill in the art at the time of the invention was made to utilize the nonconductive polymer material of Skelly, 3,573,75, for the insulation means 30 in Figs. 2-3 of Gudmundsen, 3,855,583,

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for the purpose of an insulating layer having a relative low voltage breakdown level (see lines 29-31, column 3 of Skelly, 3,573,753).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 22, 24-28, 30-33 and 43-48 are, insofar as understood, rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., 5,118,192, in view of Salgo, 3,936,690, and Gudmundsen, 3,855,583.

Regarding claims 32-33 and 47-48:

Chen et al., 5,118,192, discloses in Fig. 4 a data storage system comprising:
controller 43;
processor 44;
display 45;
data storage device 47;
communication channel 48 which is read on the system bus.

Regarding claims 31 and 46:

Chen et al., 5,118,192, discloses every feature except the features as recited in claims 31 and 46.

Salgo, 3,936,690, discloses in Fig. 1 a data storage device comprising: cylindrical glass envelope 22 which is read on the enclosure; electron beam control portion 32

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which is read on the electron beam source; Langmuir film of thin film polymer 67 as a memory storage medium (see lines 58-62, column 4) which can be cross-linked by high intensity electron beam (see lines 58-62, column 2 and lines 28-30, column 3); and photo-detectors (see claim 31).

It would have been obvious under 35 USC 103(a) to one of ordinary skill in the art at the time of the invention was made to utilize the data storage device in Fig. 1 of Salgo, 3,936,690, for the data storage device 47 in Fig. 4 of Chen et al., 5,118,192, for the purpose of using electron beam to store and retrieval of information by selectively alternating the properties of the Langmuir thin film (see lines 1-16, column 1 of Salgo, 3,936,690).

Regarding claims 22, 24-28, 30 and 43-45:

Chen et al., 5,118,192, which is modified by Salgo, 3,936,690, disclose every feature except the features as recited in claims 22-30 and 43-45.

Gudmundsen, 3,855,583, discloses in Fig. 2 a conductor-insulator-junction (CIJ) optical memory 20 comprising:

insulation means 30 which is read on a volume of material;

transparent conductor 28 which is read on a first conductive material;

Pn-JUNCTION 40 having conduction band n-type layer 36 (see lines 64-65, column 5 and Fig. 9c) coupled with insulation means 30 as recited in claims 24-25;

a small interlayer 38 in the conduction band n-type layer 36 receiving the fixed voltage supply 50 to maintain Pn-JUNCTION 40 back biased at all times (see lines 52 and 68, column 3 and line 1, column 4) as recited in claim 26;

layer 44 coupled with Pn-JUNCTION 40 as recited in claim 28 and 44;
back conductor 46 which is read on a second conductive material; load resistor 52
which is read on a reference conductor;
photon beam 78 which is read on an electron beam source.

It would have been obvious under 35 USC 103(a) to one of ordinary skill in the art at the time of the invention was made to utilize the conductor-insulator-junction (CIJ) optical memory device 20 in Fig. 1 of Gudmundsen, 3,855,583, for the Langmuir film 67 in Fig. 1 of Salgo, 3,936,690, which is used to modified for Fig. 4 of Chen et al., 5,118,192, for the purpose of providing a long term storage, optically addressed semiconductor memory (see lines 56-57, column 1 of Gudmundsen, 3,855,583).

14. Claims 23 and 29 are, insofar as understood, rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., 5,118,192, in view of Salgo, 3,936,690, and Gudmundsen, 3,855,583, as applied to claims 22, 24-28, 30-33 and 43-48 above, and further in view of Skelly, 3,573,753.

Chen et al., 5,118,192, which is modified by Salgo, 3,936,690, and Gudmundsen, 3,855,583, discloses every feature except the features as recited in claims 23 and 29.

Skelly, 3,573,753, discloses in Fig. 1 the teaching of using nonbrittle, nonconductive polymer material for the dielectric layer 11 in the data storage information medium 10 (see lines 29-51, column 3).

It would have been obvious under 35 USC 103(a) to one of ordinary skill in the art at the time of the invention was made to utilize the nonconductive polymer material of Skelly, 3,573,75, for the insulation means 30 in Figs. 2-3 of Gudmundsen, 3,855,583,

which is used for modifying Chen et al., 5,118,192, which is modified by Salgo, 3,936,690, for the purpose of an insulating layer having a relative low voltage breakdown level (see lines 29-31, column 3 of Skelly, 3,573,753).

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. Claims 34-35 and 39 are, insofar as understood, rejected under 35 U.S.C. 102(b) as being anticipated by Yasuda et al., 4,207,617.

Yasuda et al., 4,207,617, discloses in Fig. 5 an optical memory system comprising:

thin-film electroluminescence (EL) element 8, including a thin-film ZnS

electroluminescence layer 4 (see line 15, column 3), which is read on a volume of material;

electron beam generator 24 for generating electron beam;

wherein: the luminescence memory condition of thin film electroluminescence (EL) element 8 varied between erase state Be and write-in state Bw depending upon the intensity strength of the focused electron beam as shown in Fig. 2 (see lines 62-68, column 3; lines 4-8, column 8).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 36-38 and 40-42 are, insofar as understood, rejected under 35 U.S.C.

103(a) as being unpatentable over Yasuda et al., 4,207,617, in view of Magnitski et al., 6,819,649.

Yasuda et al., 4,207,617, discloses every feature except the features as recited in claims 36-38 and 40-42.

Magnitski et al., 6,819,649, discloses the teaching of using electroluminescence material of polymer (see lines 28-45, column 5) for optical information storage memory (ROM or WORM) device.

It would have been obvious under 35 USC 103(a) to one of ordinary skill in the art at the time of the invention was made to utilize the electroluminescence material of polymer of Magnitski et al., 6,819,649, for the thin-film ZnS electroluminescence layer 4 in Figs. 2 and 5 of Yasuda et al., 4,207,617, as a matter of design choice.

Double Patenting

14. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15. Claims 18, 21-31 and 43-46 are, insofar as understood, provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 19-41 of copending Application No. 11/193,213. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

A volume of material as recited in claims 18-25, 27, 29-31, 43 and 45-46 of the present invention which is read on a volume of alloy as recited in claims 19-41 of copending Application No. 11/193,213.

A thin conductive interlayer to backward bias the P-N junction as recited in claim 26 of the present invention which is read on a thin conductive layer as recited in claims 40-41 of copending Application No. 11/193,213.

A substantially transparent layer as recited in claims 28 and 44 of the present invention which is read on a substantially transparent layer as recited in claim 26 and a reflective layer as recited in claim 27 of copending Application No. 11/193,213.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

16. Claims 19-20 are, insofar as understood, provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 19-41 of copending Application No. 11/193,213, in view of Erikson, 3,519,820.

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Claims 19-41 of copending Application No. 11/193,213, recite every feature except the amplifier as recited in claims 19-20 of the present invention.

Erikson, 3,519,820, discloses in Fig. 1 the teaching of using an amplifier (not shown) to amplify the current passing through resistance means 10 (see lines 4-6, column 3).

It would have been obvious under 35 USC 103(a) to one of ordinary skill in the art at the time of the invention was made to utilize the amplifier of Erikson, 3,519,820, for amplifying the current in the first conductive material as recited in claim 22 of copending Application No. 11/193,213, and the current in the second conductive material as recited in claim 23 of copending Application No. 11/193,213.

This is a provisional obviousness-type double patenting rejection.

17. Claims 22-31 and 443-46 are, insofar as understood, provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 25-41 of copending Application No. 10/942,286. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

A volume of material as recited in claims 22-31 and 43-46 of the present invention which is read on a volume of alloy as recited in claims 25-41 of copending Application No. 10/942,286

A thin conductive interlayer to backward bias the P-N junction as recited in claim 26 of the present invention which is read on a thin conductive layer as recited in claims 40-41 of copending Application No. 10/942,286.

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A substantially transparent layer as recited in claims 28 and 44 of the present invention which is read on a substantially transparent layer as recited in claim 26 and a reflective layer as recited in claim 27 of copending Application No. 10/942,286.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

18. Claims 18-21 are, insofar as understood, rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 13-15 of U.S. Patent No. 6,643,161. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

A volume of material as recited in claims 18-21 of the present invention which is read on a first volume of polymer as recited in claims 13-15 of U.S. Patent No. 6,643,161.

19. Claims 18 and 21 are, insofar as understood, rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 5-6 of U.S. Patent No. 6,625,052. Although the conflicting claims are not identical, they are not patentably distinct from each other because;

A volume of material as recited in claims 18 and 21 of the present invention which is read on a volume of material as recited in claims 5-6 of U.S. Patent No. 6,625,052.

An electron beam source as recited in claims 18 and 21 of the present invention which is read on an electron beam as recited in claims 5-6 of U.S. Patent No. 6,625,052. The electron beam as recited in claims 5-6 of U.S. Patent No. 6,625,052,

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obviously create a first current and a second current as recited in claims 18 and 21 of the present invention.

20. Claims 19-20 are, insofar as understood, rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 5-6 of U.S. Patent No. 6,625,052, in view of Erikson, 3,519,820.

Claims 5-6 of U.S. Patent No. 6,625,052, recite every feature except the amplifier as recited in claims 19-20 of the present invention.

Erikson, 3,519,820, discloses in Fig. 1 the teaching of using an amplifier (not shown) to amplify the current passing through resistance means 10 (see lines 4-6, column 3).

It would have been obvious under 35 USC 103(a) to one of ordinary skill in the art at the time of the invention was made to utilize the amplifier of Erikson, 3,519,820, for amplifying the first current and the second current which are obviously created by the electron beam as recited in claims 5-6 of U.S. Patent No. 6,625,052.

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cohen et al., 3,736,571, Dymont et al., 3,654,497, Munakata et al., 4,672,578, Norton et al., 4,128,897, and Kumomi et al., 5,723,348 (see lines 51-54, column 1, for heat treatment using energy beam such as laser beam, electron beam, particle beam or x-rays).

Response to Arguments

22. Applicant's arguments filed on 9/21/06 have been fully considered.

a) Applicant's objections to the piecemeal and unnecessarily protracted nature of the prosecution of the present invention has been acknowledged.

b) Regarding the objection to the drawings under Rule 37 CFR 1.83(a), the amended Fig.1 now show the amplifier as recited in claims 19-20. However, the specification fails to describe the amplifier and the substantially transparent layer as recited in claims 28 and 44 is still not shown in the drawings of the present invention.

c) The objection of claim 18 has been reconsidered and changed to the rejection under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention as to how a first current is to be measured between the first conductive material and the reference conductor and, similarly, as to how a second current is to be measured between the second conductive material and the reference conductor since there is no recited circuit/element/means for providing the claimed measuring operation.

d) The rejection of claims 18 and 21 under 35 U.S.C. 102(b) as being anticipated by Skelly, 3,573,753, and the rejection of claims 19-20 under 35 U.S.C. 103(a) as being unpatentable over Skelly, 3,573,753, in view of Naji, 6,455,612, have been reconsidered to be improper, therefore, they are withdrawn.

e) Regarding the rejection of claims 22-25, 27, 29-33 and 43-48 under 35 U.S.C. 103(a) as being unpatentable over Chen et al., 5,118,192, in view of Salgo, 3,936,690, and Skelly, 3,573,753:

i) MPEP 804.03 [R.3], II. C. Timing of Double Patenting Rejections

clearly set forth that the examiner should make both a double patenting rejection based on common ownership and a rejection based on 35 U.S.C. 102(e)/103 prior art when the facts support both rejections. Until applicant has established that a reference is disqualified as prior art under the joint research agreement exclusion of 35 U.S.C. 103(c), the examiner should NOT apply a double patenting rejection based on a joint research agreement. See MPEP § 706.07(a) and § 804 for information regarding when an Office action that includes a new subsequent double patenting rejection based upon a reference disqualified under 35 U.S.C. 103(c) may be made final. Accordingly, the Examiner is making the rejection of claims 22-25, 27, 29-33 and 43-48 under 35 U.S.C. 103(a) as being unpatentable over Chen et al., 5,118,192, in view of Salgo, 3,936,690, and Skelly, 3,573,753, logically, legally and consistently with the rejection of claims 22-25, 27, 29-30, 43 and 45 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 6,643,161.

ii) The rejection of claims 22-25, 27, 29-33 and 43-48 under 35 U.S.C. 103(a) as being unpatentable over Chen et al., 5,118,192, in view of Salgo, 3,936,690, and Skelly, 3,573,753, has been reconsidered to be improper and has been withdrawn in view of regions 29 and 30 Fig. 4 of Skelly, 3,573,753, being not readable on the claimed PN junction.

f) The rejection of claims 34-42 under 35 USC 102(e) as being anticipated by Magnitski, 6,819,649, has been reconsidered to be improper and has been withdrawn in view of Magnitski, 6,819,649, failing to teach the electron beam.

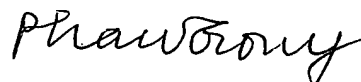
For all of above reasons, the last office action of 5/22/06 has been withdrawn.

A new non-FINAL office action has been set forth as above.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRONG PHAN whose telephone number is (571) 272-1794. The examiner can normally be reached on M-F (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AMIR ZARABIAN can be reached on (571)272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

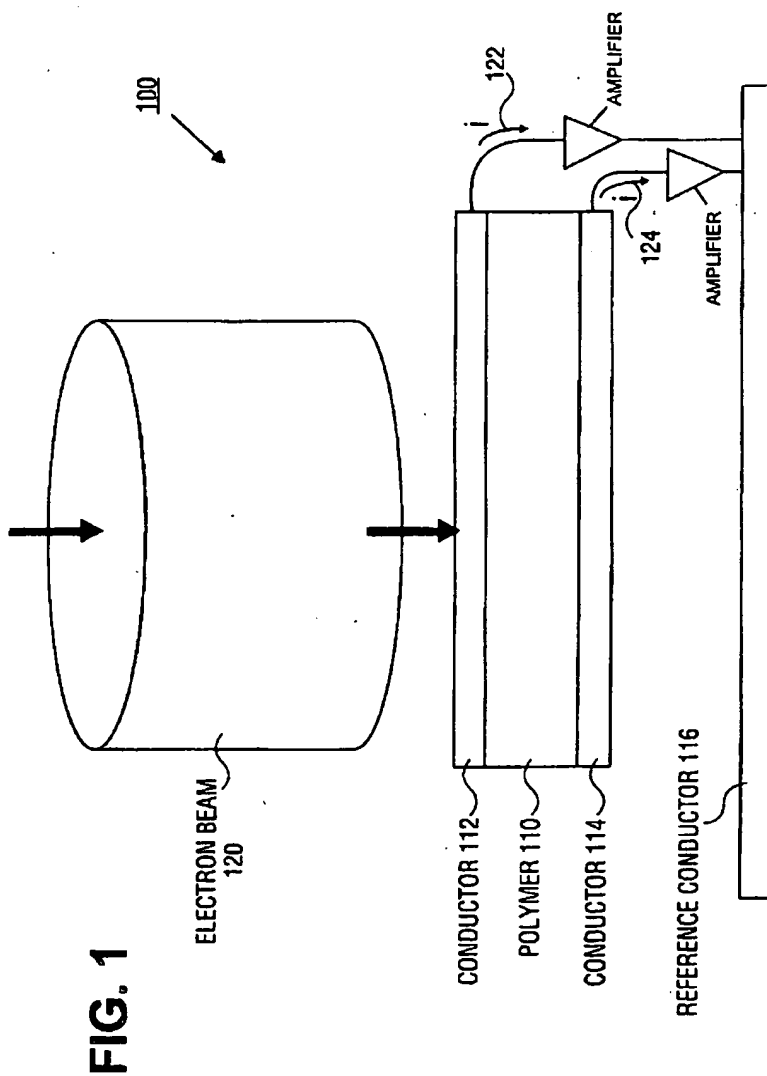


**TRONG PHAN
PRIMARY EXAMINER**

REPLACEMENT SHEET

1/4

Approved
TP
11/19/06



REPLACEMENT SHEET

2/4

